

What is claimed is:

- 1 1. High-voltage direct current cable semiconductive shield comprising:
2 a blend of or which is made from a blend of
 - 3 (a) at least one ethylene copolymer having a density of less than about
4 0.900grams/cubic centimeter, a melt index of from about 0.5 to about
5 10grams/10 minutes, a crystallinity of less than about 10 percent and a
6 catalyst residue of less than about 1000 ppm;
 - 7 (b) a carbon black having a low level of ionic species;
 - 8 (c) at least one polar polymer modifier in an amount effective to provide a
9 semiconductive shield made with the blend with an enhanced field
10 conductivity and enhanced space charge leakage at high fields relative to
11 a semiconductive shield made with a blend which does not include a
12 polar polymer modifier; and
 - 13 (d) at least one ion scavenger in an amount effective to reduce ionic
14 mobility relative to a semiconductive shield made with a blend, which
15 does not include an ion scavenger.
- 1 2. A high-voltage direct current cable semiconductive shield according to Claim 1,
2 wherein the ethylene copolymer is selected from the group consisting of
 - 3 (a) ethylene/alpha olefin copolymers and
 - 4 (b) nonpolar, low crystalline ethylene copolymers selected from the group
5 consisting of ethylene/propylene copolymer and ethylene/styrene
6 copolymer and mixtures thereof.
- 1 3. The high-voltage direct current semiconductive shield of claims 1 or 2, wherein
2 the blend further includes at least one heat stabilizer.
- 1 4. The high-voltage direct current semiconductive shield of any of claims 1 - 3,
2 wherein
 - 3 (a) the polar polymer modifier is selected from the group consisting of (i) a
4 polymer having a density of less than 0.900grams/cubic centimeter with
5 at least one side group selected from the group consisting of hydroxyl,
6 carboxyl, styrenic; (ii) a polymer having a density of less than
7 0.900grams/cubic centimeter and at least one side group which is a

- 8 residue of maleic anhydride, vinyl acetate or vinyl acrylate; (iii) a
9 polylactone resin and; (iv) mixtures thereof, and
10 (b) the ion scavenger has at least one chelating group.
- 1 5. The high-voltage direct current semiconductive shield as recited in claim 4,
2 wherein the ion scavenger is selected from the group consisting of 1,2-bis(3,5-di-tert-
3 butyl-4-hydroxyhydrocinnamoyl)hydrazine, poly[[6-[1,1,3,3-tetramethylbutyl)amino]-
4 s-triazine-2,4-diyl] [2,2,6,6-tetramethyl-4-piperidyl)imino]hexamethylene[(2,2,6,6-
5 tetramethyl-4-piperidyl)imino]] N,N'-bis(0-hydroxybenzal) oxalydihydride, barbituric
6 acid, tertiary phosphorous acid ester of a thiobisphenol, and N,N'-diphenyuloxamid,
7 and mixtures thereof.
- 1 6. The high-voltage direct current semiconductive shield of any one of claims 1 -
2 5, wherein the ethylene copolymer is crosslinked.